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APPLICATION FOR LETTERS PATENT

**Page-View Recording with
Click-Thru Tracking**

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TECHNICAL FIELD

This invention relates to content and request information tracking and, in particular, to recording tracking information when requesting content, and when providing and/or rendering the content.

BACKGROUND

Conventional information tracking systems have limitations that preclude obtaining meaningful customer and visitor analysis information pertaining to Web sites. In particular, useful analysis information about a request for a Web site, and analysis information associated with a data request initiated at a Web site, either can not be determined or obtained with conventional systems, or can not be determined or obtained without an impact to a customer of a particular Web site.

Fig. 1 illustrates a conventional tracking system 100 to record that a Web page has been requested for viewing by a user. Tracking system 100 has a client computing device 102 connected to a display device 104. The display device 104 displays a Web page 106 having a selectable data link 108, such as a hyperlink.

The client computing device 102 is connected to a Web page server 110 via a network connection 112, such as the Internet. Web page server 110 provides Web page structure 114, and information for display within the Web page structure. Web page structure 114 includes a standard script redirect function 116 that generates tracking information when the Web page is requested. The Web page server 110 is connected, or includes, a data storage device 118 that stores the tracking information.

When a user of the client computing device 102 selects the link 108 within Web page 106, client computing device 102 communicates a request for Web page

1 114 to Web page server 110. The redirect function 116, which is implemented at
2 Web pager server 110, generates tracking information to indicate that Web page
3 structure 114 has been requested, and where the request came from.

4 With the conventional tracking system 100, each section of Web page
5 structure 114 is recorded in the data storage device 118 as a separate data record,
6 and each section is associated with the user of client computing device 102. That
7 is, all of the page sections (also commonly referred to as “page views”) for a
8 particular requested Web page are logged with the tracking system 100, and each
9 page section is associated with the user request for the Web page. This only
10 identifies that the user of client computing device 102 requested Web page 114.

11 With conventional tracking system 100, information pertaining to
12 selectable link 108, Web page 106, and a location of selectable link 108 within
13 Web page 106 is not determinable. Additionally, a response to the user’s request
14 for Web page 114 is delayed when script function 116 has to first determine the
15 tracking information, and initiate the tracking information being stored at data
16 storage device 118.

17 18 **SUMMARY**

19 A tracking system receives a request for content that includes request-
20 tracking information. The request-tracking information includes identifiers for the
21 content, a content provider, a destination device for the content, a selectable data
22 link that generates the request, rendered content that includes the data link, and a
23 location of the data link within the rendered content. Additionally, the request-
24 tracking information designates that the tracking system receive the request for
25 content before the request is communicated to a designated content provider. The

1 request-tracking information is stored in a tracking information database, and the
2 request-tracking information is associated with the device requesting the content
3 and/or with a user of the requesting device.

4 The request for content is communicated to the content provider that is
5 designated in the content request to provide the content. The content provider
6 provides the content to the requesting device. The content includes content-
7 tracking information that includes identifiers for the content provider, the
8 destination device, and the content. The tracking system receives the content-
9 tracking information from the destination device when the content is provided to
10 and/or rendered at the destination device. The content-tracking information is
11 stored in the tracking information database, and the content-tracking information
12 is associated with the destination device and/or with a user of the destination
13 device.

14 **BRIEF DESCRIPTION OF THE DRAWINGS**

15 The same numbers are used throughout the drawings to reference like
16 features and components.

17 Fig. 1 is a block diagram of a conventional tracking system for a Web page
18 request.

19 Fig. 2 is a block diagram that illustrates a content and request information
20 tracking system.

21 Fig. 3 is a flow diagram of a method for content and request information
22 tracking.

23 Fig. 4 illustrates a data structure of records that include content and request
24 tracking information.
25

1 Fig. 5 illustrates a graphic that can be generated from the information
2 maintained in the data structure shown in Fig. 4.

3 Fig. 6 is a block diagram that illustrates a content and request information
4 tracking system.

5 Fig. 7 is a flow diagram of a method for content and request information
6 tracking.

7 Fig. 8 is a diagram of computing systems, devices, and components in an
8 environment that can be used to implement the invention described herein.

9 10 **DETAILED DESCRIPTION**

11 **Introduction**

12 The following describes systems and methods for page-view recording with
13 click-through tracking. Tracking information provides an insight as to how
14 customers and visitors to a Web site, for example, respond to content presented for
15 viewing. The tracking information can be analyzed to determine how to better
16 design and present the content, such as for the layout of a Web page, taking into
17 consideration business and marketing decisions. Being able to determine not only
18 the content that a viewer sees, but also how a viewer perceives the content is
19 valuable marketing and business information.

20 **Exemplary Content and Request Information Tracking System**

21 Fig. 2 illustrates a content and request information tracking system 200
22 having components that can be implemented within a computing device, or the
23 components can be distributed within a computing system having more than one
24 computing device. Information tracking system 200 includes a content provider
25 202, a tracking device 204, a client device 206, and a network 208. See the

1 description of "Exemplary Computing System and Environment" below for
2 specific examples and implementations of networks, computing systems,
3 computing devices, and components that can be used to implement the invention
4 described herein.

5 Network 208 can be any type of network, such as a local area network
6 (LAN) or a wide area network (WAN), using any type of network topology and
7 any network communication protocol. Furthermore, network 208 can represent a
8 combination of two or more networks. In this example, network 208 includes
9 logical connections to facilitate data communication between the content provider
10 202, the tracking device 204, and the client device 206.

11 Content provider 202 includes content servers 210 and 212 that maintain
12 and provide content 214 and 216, respectively. Content 214 and 216 can be any
13 type of data, content, Web pages, and the like that is provided by a server system
14 when requested, such as from a particular Web site. Content 214 and 216 is
15 maintained in one or more data storage components (not shown). Content
16 provider 202 can also include tracking device 204.

17 Tracking device 204 includes a tracking database 218 that is a data storage
18 component to maintain tracking information. Tracking database 218 can be
19 implemented as RAM (random access memory), a disk drive, a floppy disk drive,
20 a CD-ROM drive, or any other component utilized for data storage. Furthermore,
21 those skilled in the art will recognize that tracking device 204 and content servers
22 210 and 212 can each be implemented as multiple server devices in a distributed
23 computing environment, where each server device can have multiple data storage
24 components.
25

Tracking device 204 also includes one or more processors 220 to process various instructions to control the operation of the tracking server. An application component 222 executes on processor(s) 220 to process tracking information that will be routed for storage to the tracking database 218. The application component 222 can be implemented as an ISAPI filter (Internet Server Application Program Interface) that executes as part of an Internet server application. An ISAPI filter is an example of a dynamic link library application file that can be executed as part of an HTTP (Hypertext Transfer Protocol) application process. Furthermore, an ISAPI filter can be designed to receive control for HTTP requests, and can be created for such purposes as logging information, request screening, and for other purposes.

Client device 206 is connected to a display device 224 which is shown having rendered content 226 displayed on the device. Rendered content 226 can be a Web page, for example, that is created and displayed with HTML (Hypertext Markup Language). A Web page designed with HTML contains text and specifications about where image or other multimedia files are located when the page is displayed. Each Web page is an individual HTML file with its own Web address which is a URL (Uniform Resource Locator). A Web page can be created to support multiple frames which designates that multiple pages, or HTML files, can be downloaded to a browser application and presented on designated sections of the display screen at the same time.

Rendered content 226 includes a selectable data link 228 and various sections and/or frames. The selectable data link 228 can be hyperlink, in the case of a Web page, or any other type of selectable connection that generates a request for content when selected by a user of the client device 206. The various sections

1 of the rendered content 226 can include a browser header 230, a Web page header
2 232 (in the case of the rendered content being a Web page), a content section 234,
3 a browser footer 236, and a navigation section 238. Although only one selectable
4 data link 228 is shown in the content section 234, data links can be located within
5 any of the rendered content sections, and particularly in the navigation section
6 238. In the case of a Web page, data links in navigation section 238 “navigate” a
7 user of the client device 206 to other Web pages and/or Web sites.

8 The information tracking system 200 can be implemented to obtain tracking
9 information associated with a request for content, and tracking information
10 associated with providing the content. Obtaining request-tracking information
11 associated with a request for content is described below as “Click-thru Tracking”.
12 Obtaining content-tracking information associated with providing content is
13 described below as “Page-view Recording”.

14 **Click-thru Tracking**

15 Click-thru tracking provides request-tracking information when content is
16 requested via a selectable data link within rendered content. For example, when a
17 user of client device 206 selects data link 228 from the rendered content 226, a
18 request for content, such as a new Web page, is generated. A content request can
19 be initiated by user interaction with client device 206, or the request can be
20 initiated by an application executing on the client device.

21 A content request is encoded with, or includes, request-tracking
22 information. The request-tracking information identifies the content requested,
23 such as a new Web page, the rendered content page from which the content
24 request originated, the data link that was selected to initiate the content request,
25 and the section of the rendered content page that the data link is located in. For

1 example, a content request initiated with data link 228 includes request-tracking
2 information that identifies the content requested, and that the content request
3 originated with data link 228 located in the content section 234 of rendered
4 content 226.

5 Tracking device 204 receives a content request from client device 206 and
6 application component 222 processes the request. The request-tracking
7 information included with the content request designates that the request be
8 redirected such that tracking device 204 receives the content request before the
9 request is routed, or otherwise communicated, to a designated content provider.

10 The request-tracking information is received by tracking device 204
11 structured as an HTTP URL for a click-thru record that is maintained with
12 tracking database 218. Following is an example of a URL structure for a click-
13 thru record:

14
15 `http://TrackingSever.com/CT/ContentSource/ClientSource/PageValue/ContentID.htm?`
16 `page=http://ContentProvider.com/ContentServer/content.htm`

17 The URL structure for a click-thru record includes a tracking server
18 identifier, “http://TrackingSever.com”, that identifies where to redirect a content
19 request. In this instance, the content request is redirected to tracking device 204.
20 The tracking information is identified as a click-thru record with the “CT”
21 identifier.

22 A content source identifier, “ContentSource”, identifies the content
23 provider that provided the content from which the content request is generated.
24 For example, if content provider 202 originally provided rendered content 226 to
25

1 client device 206, then content provider 202 would be identified as the content
2 source.

3 A client source identifier, "ClientSource", differentiates between different
4 versions of a particular application, or between different applications that provide
5 the same service, at the content requesting device. For example, rendered content
6 226 at client device 206 can be a media application implemented as an
7 independent application having a user interface through which a user can initiate a
8 request for video content from content provider 202. Client device 206 can
9 similarly display the media user interface within an Internet browser application
10 on display device 224, and the user can initiate a request for the same video
11 content using data link 228. The client source identifier can be encoded to
12 differentiate between the independent application, or the Internet browser version.

13 A content page identifier, "PageValue", is a character and/or number code
14 that corresponds to a table entry maintained in a page value table (not shown) in
15 the tracking device 204. An example of a PageValue is "HOME0F1G1", which
16 has a format of \$\$\$\$#AALL, where "\$\$\$\$" identifies a home page, "#" identifies
17 the page level (where 0 is the top level page, or home page), "AA" is an area
18 identifier that identifies a feature on the page (where F1 identifies a first feature on
19 the page), and "LL" further identifies an aspect of the area identified by "AA"
20 (where G1 indicates a first graphic associated with the first feature F1). The "LL"
21 identifier can also designate a link type, such as a graphic link, navigation link,
22 content link, or any other similar link type.

23 A content identifier, "ContentID", identifies the requested content, and the
24 URL structure is appended with a URL, that designates the content provider
25 having the requested content. For example, the URL structure includes

1 “page=http://ContentProvider.com/ContentServer/content.htm”, which designates
2 that the requested content 214 is maintained by content provider 202 in content
3 server 210.

4 Those skilled in the art will recognize that the URL structure for a click-
5 thru record, and the combination of included identifiers is merely an example to
6 illustrate click-thru tracking. Any combination of identifiers can be created and
7 defined to be included with request-tracking information as described herein.

8 The application component 222 processes a content request to obtain the
9 tracking information for a click-thru record, and communicates with the tracking
10 database 218 to store the tracking information. Tracking device 204 logs the
11 tracking information into the tracking database 218, and then passes the content
12 request on to the designated content provider. The content provider is identified
13 by the designator appended to the URL structure (e.g., “page=http://<URL of
14 content provider>” in the above example).

15 If a content request is initiated at client device 206, and communicated to
16 tracking device 204, but tracking device 204 cannot process the request without a
17 noticeable delay to client device 206, the content request is routed to the
18 designated content provider (e.g., content provider 202) without processing the
19 request-tracking information. That is, if tracking device 204 is too busy to process
20 the tracking information, the requesting device will not be impacted with a slow
21 response to the request.

22 With information tracking system 200, a user initiating a content request is
23 not aware of the click-thru tracking because the request-tracking information is
24 encoded, or otherwise associated, with the content request. A Web page, or
25

1 rendered content 226, already has the necessary redirection and navigation
2 information associated with each data link 228 within the page.

3 **Page-view Recording**

4 Page-view recording provides content-tracking information when requested
5 content is provided and/or rendered at a requesting device. For example, when a
6 user of client device 206 requests new content, such as a new Web page, to replace
7 rendered content 226, content provider 202 provides the new content 214 from
8 content server 210. Content provider 202 provides the requested content and
9 includes content-tracking information encoded with the content.

10 Content-tracking information provided with a requested Web page is
11 encoded with the Web page as a URL. Those skilled in the art will recognize that
12 a Web page can be programmed, or otherwise created, to include encoded
13 information and instructions for determining and generating the content-tracking
14 information, and for routing the content-tracking information after the requested
15 Web page is provided to a destination device. The implementation of content-
16 tracking information is such that any browser version can implement page-view
17 recording.

18 When client device 206 receives new content 214, and the included
19 content-tracking information, the content is displayed, or otherwise rendered, on
20 display device 224. When the new content is fully rendered on the display, the
21 content-tracking information is communicated to tracking device 204 to indicate
22 that the new content has been fully rendered at the destination device (e.g., client
23 device 206). Alternatively, the content-tracking information can be communicated
24 to tracking device 204 to indicate that the content has been provided to the
25 destination device, but is only partially rendered, such as when a user selects a

1 data link from a section of the page that has been rendered, but before the entire
2 page is rendered.

3 Tracking device 204 receives the content-tracking information from client
4 device 206 and application component 222 processes the information. The
5 content-tracking information is received by tracking device 204 structured as an
6 HTTP URL for a page-view record that is maintained with tracking database 218.
7 Following is an example of a URL structure for a page-view record:

8
9 `http://TrackingSever.com/PV/ContentSource/ClientSource/PageValue/PageName.htm`
10

11 The URL structure for a page-view record includes a tracking server
12 identifier, “http://TrackingSever.com” that identifies where to route the content-
13 tracking information after the requested content is provided to a destination device
14 (e.g., client device 206). The tracking information is identified as a page-view
15 record with the “PV” identifier. A content source identifier, “ContentSource”,
16 identifies the content provider of the requested content, which in this example is
17 content provider 202.

18 A client source identifier, “ClientSource”, identifies the rendered content at
19 the content requesting device, such as rendered content 226 at client device 206.
20 The rendered content 226 can be a media application implemented as an
21 independent application having a user interface through which a user can initiate a
22 request for video content from content provider 202. Client device 206 can
23 similarly display the media user interface within an Internet browser application
24 and the user can initiate a request for the same video content using data link 228.
25 The client source identifier can be encoded to differentiate between the

1 independent application, or the Internet browser version. Additionally, the client
2 source identifier can be encoded to designate which version of a particular
3 software application is implemented by the requesting client device.

4 A content page identifier, "PageValue", is a character and/or number code
5 that corresponds to a table entry maintained in a page value table (not shown) in
6 the tracking device 204. The page value can be referenced in the page value table
7 to identify which Web page and in what format the Web page was requested. A
8 content identifier, "PageName", identifies the requested content.

9 Those skilled in the art will recognize that the URL structure for a page-
10 view record, and the combination of included identifiers is merely an example to
11 illustrate page-view recording. Any combination of identifiers can be created and
12 defined to be included with content-tracking information as described herein.

13 The application component 222 at tracking device 204 processes content-
14 tracking information to obtain the tracking information for a page-view record,
15 and communicates with the tracking database 218 to store the tracking
16 information. Tracking device 204 logs the tracking information into the tracking
17 database 218.

18 **Method for Content and Request Information Tracking**

19 Fig. 3 illustrates a method to describe content and request information
20 tracking, and illustrates components of the information tracking system 200
21 (Fig. 2). Those skilled in the art will recognize that the components are merely
22 exemplary, and that any number of components can be used to implement content
23 and request information tracking. Furthermore, the tracking device and content
24 provider shown in Fig. 3 can be implemented as the same device. The order in
25 which the method is described is not intended to be construed as a limitation.

1 Furthermore, the method can be implemented in any suitable hardware, software,
2 firmware, or combination thereof.

3 At block 300, a request for content is received at a tracking device 204, and
4 the request includes request-tracking information. The tracking device 204 can
5 include a database, or similar data storage component, to store and/or maintain the
6 request-tracking information. The request-tracking information designates that the
7 tracking device 204 receive the content request before the content provider 202.
8 The request-tracking information is included with the content request because the
9 request-tracking information is encoded, or otherwise associated, with a selectable
10 data link 228 that initiates the content request at the requesting device 206.

11 At block 302, the request for content is routed, or otherwise communicated,
12 to the content provider 202 from the tracking device 204. At block 304, the
13 content provider 202 receives the content request. At block 306, the requested
14 content is provided to the requesting device 206, and the content includes content-
15 tracking information. The content-tracking information designates that the
16 tracking device 204 receive the content-tracking information.

17 At block 308, the requested content is received at the requesting device 206
18 along with the content-tracking information. At block 310, the content-tracking
19 information is routed, or otherwise communicated, to tracking device 204. The
20 content-tracking information is routed to tracking device 204 when the content is
21 provided to the requesting device 206, and/or when the content is rendered at the
22 requesting device. At block 312, the content-tracking information is received at
23 tracking device 204. The tracking device can store and/or maintain the content-
24 tracking information in a database, or similar data storage component.

Fig. 3 illustrates both page-view recording and click-thru tracking as described above with reference to Fig. 2. However, page-view recording and click-thru tracking can be implemented, or occur, independently. For example, if the selectable data link 228 in rendered content 226 does not have associated request-tracking information, a click-thru record will not be generated by tracking device 204. Rather, if a user at client device 206 initiates a new content request using selectable data link 228, the request will be routed, or otherwise communicated, to content provider 202 without being redirected to tracking device 204. When content provider 202 provides the requested content to client device 206, however, the content will include content-tracking information. The content-tracking information will be communicated to tracking device 204 when the content is provided to and/or rendered at client device 206. Accordingly, a page-view record will be generated by tracking device 204.

Conversely, if the selectable data link 228 in rendered content 226 does have associated request-tracking information, a click-thru record will be generated by tracking device 204. When a user at client device 206 initiates a new content request using selectable data link 228, the request will be redirected to tracking device 204. Application component 222 will process the content request to generate a click-thru record for the request, and route the request to a content provider. If the content request designates a different content provider (other than content provider 202) that does not implement or provide tracking information, the content will be provided to requesting device 206 without content-tracking information. Accordingly, a page-view record will not be generated by tracking device 204.

Exemplary Tracking Information Data Structure and Graph

Fig. 4 illustrates a data structure 400 that includes multiple tracking information records 402 through 410. Records 402, 406, and 410 are examples of page-view records, and records 404 and 408 are examples of click-thru records. Individual tracking information records 402 through 410 include a userID and/or deviceID field 412, a page-view or click-thru record identifier field 414, a content source field 416, a client source field 418, a page value field 420, and a page name or contentID field 422.

Each of the record fields 412 through 422 can contain any numerical or alphanumerical value that uniquely identifies the data in the fields. Additionally, the combination of records and fields shown in data structure 400 is merely an example to illustrate maintaining tracking information. Those skilled in the art will recognize that any combination of records, fields, and data can be created and defined in a data structure.

The userID field 412 identifies that a particular user is associated with each page-view and click-thru record 402 through 410 in data structure 400. The content source field 416 identifies that a particular content provider is also associated with each record 402 through 410.

Fig. 5 illustrates a graphic 500 that can be generated from the information maintained in data structure 400 (Fig. 4). Content page A, identified as 502, corresponds to page-view record 402. When a user initiates a request for page A (page name field 422) from an already rendered page (client source field 418), the content provider (content source field 416) provides the requested content to the user and the page-view record (identifier 414) is generated.

Record 404 corresponds to the user selecting a data link in the navigation section 504 of page 502. Selecting the data link initiates a request for page B (contentID field 422) from an already rendered page A (client source field 418) in the navigation section of page A (page value field 420). Fig. 5 illustrates that initiating a request from the navigation section 504 of page 502 results in content page B, identified as 506.

Content page B corresponds to page-view record 406. When the user initiates a request for page B from the rendered page A, the content provider provides the requested content to the user and page-view record 406 is generated. Record 408 corresponds to the user selecting a data link in the content section 508 of page 506. Selecting the data link initiates a request for page C from the rendered page B in the content section of page B (page value field 420). Fig. 5 illustrates that initiating a request from the content section 508 of page 506 results in content page C, identified as 510, and content page C corresponds to page-view record 410.

Exemplary Application Request Information Tracking System

Fig. 6 illustrates a content request information tracking system 600 having components that can be implemented within a computing device, or the components can be distributed within a computing system having more than one computing device. Information tracking system 600 includes a content provider 602, a tracking device 604, a client device 606, and a network 608. See the description of “Exemplary Computing System and Environment” below for specific examples and implementations of networks, computing systems, computing devices, and components that can be used to implement the invention described herein.

1 Network 608 can be any type of network, such as a local area network
2 (LAN) or a wide area network (WAN), using any type of network topology and
3 any network communication protocol. Furthermore, network 208 can represent a
4 combination of two or more networks. In this example, network 608 includes
5 logical connections to facilitate data communication between the content provider
6 602, the tracking device 604, and the client device 606.

7 Content provider 602 maintains and provides content 610 that can be any
8 type of data or content provided by a server system. Content 610 is maintained in
9 one or more data storage components (not shown). Content provider 602 can also
10 include the tracking device 604.

11 Tracking device 604 includes a tracking database 612 that is a data storage
12 component to maintain tracking information. Tracking database 612 can be
13 implemented as RAM (random access memory), a disk drive, a floppy disk drive,
14 a CD-ROM drive, or any other component utilized for data storage. Furthermore,
15 those skilled in the art will recognize that tracking device 604 can implemented as
16 multiple server devices in a distributed computing environment, where each server
17 device can have multiple data storage components.

18 Tracking device 604 also includes one or more processors 614 to process
19 various instructions to control the operation of the tracking server. An application
20 component 616 executes on processor(s) 614 to process tracking information that
21 will be routed for storage to the tracking database 612.

22 Client device 606 is connected to a display device 618 which is shown
23 displaying an application user interface 620. The user interface 620 includes a
24 menu bar 622, and is shown having the "Tools" option selected. A drop down
25

1 menu 624 is shown under the selected “Tools” option. The user interface 620 also
2 includes a rendered content page 626.

3 The drop down menu 624 includes a selectable data link 628, identified as
4 “Update Content”. The selectable data link 628 is a selectable connection that
5 generates a request for content when selected by a user of the client device 606. A
6 request for content is encoded with, or includes, request-tracking information
7 pertaining to selecting the data link 628 in the application user interface 620. The
8 information tracking system 600 can be implemented to obtain tracking
9 information pertaining to the frame work of a product (e.g., application user
10 interface 620), as well as the rendered content 626 itself.

11 Tracking device 604 receives a content request from client device 606 and
12 application component 616 processes the request. The request-tracking
13 information included with the content request designates that the request be
14 redirected such that tracking device 604 receives the content request before the
15 request is routed, or otherwise communicated, to a designated content provider
16 602. The request-tracking information is received by tracking device 604
17 structured as an HTTP URL for a click-thru record that is maintained with
18 tracking database 612. See the description of “Click-thru Tracking” described
19 above for obtaining request-tracking information associated with a content request.

20 **Method for Content and Request Information Tracking**

21 Fig. 7 illustrates a method for content and request information tracking.
22 The order in which the method is described is not intended to be construed as a
23 limitation. Furthermore, the method can be implemented in any suitable hardware,
24 software, firmware, or combination thereof.

1 At block 700, a request for content is received, and the request includes
2 request-tracking information. The request-tracking information includes
3 identifiers that correspond to the content request. At block 702, a selectable
4 connection identifier, a rendered content identifier, and a location identifier are
5 determined from the request-tracking information. The content request is
6 generated from the selectable connection at the identified location within the
7 rendered content displayed at the requesting device. The selectable connection
8 can be any data link, hyperlink, hypertext link, or the like. The rendered content
9 can include a Web page or an application component user interface displayed at
10 the requesting device.

11 At block 704, the request-tracking information is stored in a data storage
12 component. For example, a tracking device, or a tracking server, receives the
13 content request and stores the request-tracking information in a database. At block
14 706, the request-tracking information is associated with the device that requests
15 the content. Alternatively, or additionally, the request-tracking information is
16 associated with a user of the requesting device at block 708. The requesting
17 device is identified in the request-tracking information, and the tracking device
18 can associate the request-tracking information with the requesting device and a
19 user of the device in the database.

20 At block 710, the content request is routed, or otherwise communicated, to
21 a content provider. In this discussion, the tracking device and the content provider
22 can be the same device. At block 712, the content provider provides the content,
23 including the content-tracking information, to the requesting device. At block
24 714, the content-tracking information is routed, or otherwise communicated, to the
25 tracking device. The content-tracking information is routed to the tracking device

1 when the content is provided to the requesting device and/or when the content is
2 rendered at the requesting device.

3 At block 716, the content-tracking information is stored in a data storage
4 component. For example, the tracking device stores the content-tracking
5 information in a database. At block 718, the content-tracking information is
6 associated with the destination device that is provided the content, which, in this
7 discussion is the requesting device. Alternatively, or additionally, the content-
8 tracking information is associated with a user of the requesting device at block
9 720. The destination device that is provided the content is identified in the
10 content-tracking information, and the tracking device can associate the content-
11 tracking information with the destination device and a user of the device in the
12 database.

13 **Exemplary Computing System and Environment**

14 Fig. 8 illustrates an example of a computing environment 800 within which
15 the computer, network, and system architectures described herein can be either
16 fully or partially implemented. Exemplary computing environment 800 is only
17 one example of a computing system and is not intended to suggest any limitation
18 as to the scope of use or functionality of the network architectures. Neither should
19 the computing environment 800 be interpreted as having any dependency or
20 requirement relating to any one or combination of components illustrated in the
21 exemplary computing environment 800.

22 The computer and network architectures can be implemented with
23 numerous other general purpose or special purpose computing system
24 environments or configurations. Examples of well known computing systems,
25 environments, and/or configurations that may be suitable for use include, but are

not limited to, personal computers, server computers, thin clients, thick clients, hand-held or laptop devices, multiprocessor systems, microprocessor-based systems, set top boxes, programmable consumer electronics, network PCs, minicomputers, mainframe computers, gaming consoles, distributed computing environments that include any of the above systems or devices, and the like.

Page-view recording with click-through tracking may be described in the general context of computer-executable instructions, such as program modules, being executed by a computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Page-view recording with click-through tracking may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote computer storage media including memory storage devices.

The computing environment 800 includes a general-purpose computing system in the form of a computer 802. The components of computer 802 can include, by are not limited to, one or more processors or processing units 804, a system memory 806, and a system bus 808 that couples various system components including the processor 804 to the system memory 806.

The system bus 808 represents one or more of any of several types of bus structures, including a memory bus or memory controller, a peripheral bus, an accelerated graphics port, and a processor or local bus using any of a variety of bus architectures. By way of example, such architectures can include an Industry Standard Architecture (ISA) bus, a Micro Channel Architecture (MCA) bus, an

Enhanced ISA (EISA) bus, a Video Electronics Standards Association (VESA) local bus, and a Peripheral Component Interconnects (PCI) bus also known as a Mezzanine bus.

Computer system 802 typically includes a variety of computer readable media. Such media can be any available media that is accessible by computer 802 and includes both volatile and non-volatile media, removable and non-removable media. The system memory 806 includes computer readable media in the form of volatile memory, such as random access memory (RAM) 810, and/or non-volatile memory, such as read only memory (ROM) 812. A basic input/output system (BIOS) 814, containing the basic routines that help to transfer information between elements within computer 802, such as during start-up, is stored in ROM 812. RAM 810 typically contains data and/or program modules that are immediately accessible to and/or presently operated on by the processing unit 804.

Computer 802 can also include other removable/non-removable, volatile/non-volatile computer storage media. By way of example, Fig. 8 illustrates a hard disk drive 816 for reading from and writing to a non-removable, non-volatile magnetic media (not shown), a magnetic disk drive 818 for reading from and writing to a removable, non-volatile magnetic disk 820 (e.g., a "floppy disk"), and an optical disk drive 822 for reading from and/or writing to a removable, non-volatile optical disk 824 such as a CD-ROM, DVD-ROM, or other optical media. The hard disk drive 816, magnetic disk drive 818, and optical disk drive 822 are each connected to the system bus 808 by one or more data media interfaces 826. Alternatively, the hard disk drive 816, magnetic disk drive 818, and optical disk drive 822 can be connected to the system bus 808 by a SCSI interface (not shown).

1 The disk drives and their associated computer-readable media provide non-
2 volatile storage of computer readable instructions, data structures, program
3 modules, and other data for computer 802. Although the example illustrates a
4 hard disk 816, a removable magnetic disk 820, and a removable optical disk 824,
5 it is to be appreciated that other types of computer readable media which can store
6 data that is accessible by a computer, such as magnetic cassettes or other magnetic
7 storage devices, flash memory cards, CD-ROM, digital versatile disks (DVD) or
8 other optical storage, random access memories (RAM), read only memories
9 (ROM), electrically erasable programmable read-only memory (EEPROM), and
10 the like, can also be utilized to implement the exemplary computing system and
11 environment.

12 Any number of program modules can be stored on the hard disk 816,
13 magnetic disk 820, optical disk 824, ROM 812, and/or RAM 810, including by
14 way of example, an operating system 826, one or more application programs 828,
15 other program modules 830, and program data 832. Each of such operating
16 system 826, one or more application programs 828, other program modules 830,
17 and program data 832 (or some combination thereof) may include an embodiment
18 of a page-view recording with click-through tracking.

19 Computer system 802 can include a variety of computer readable media
20 identified as communication media. Communication media typically embodies
21 computer readable instructions, data structures, program modules, or other data in
22 a modulated data signal such as a carrier wave or other transport mechanism and
23 includes any information delivery media. The term "modulated data signal"
24 means a signal that has one or more of its characteristics set or changed in such a
25 manner as to encode information in the signal. By way of example, and not

1 limitation, communication media includes wired media such as a wired network or
2 direct-wired connection, and wireless media such as acoustic, RF, infrared, and
3 other wireless media. Combinations of any of the above are also included within
4 the scope of computer readable media.

5 A user can enter commands and information into computer system 802 via
6 input devices such as a keyboard 834 and a pointing device 836 (e.g., a “mouse”).
7 Other input devices 838 (not shown specifically) may include a microphone,
8 joystick, game pad, satellite dish, serial port, scanner, and/or the like. These and
9 other input devices are connected to the processing unit 804 via input/output
10 interfaces 840 that are coupled to the system bus 808, but may be connected by
11 other interface and bus structures, such as a parallel port, game port, or a universal
12 serial bus (USB).

13 A monitor 842 or other type of display device can also be connected to the
14 system bus 808 via an interface, such as a video adapter 844. In addition to the
15 monitor 842, other output peripheral devices can include components such as
16 speakers (not shown) and a printer 846 which can be connected to computer 802
17 via the input/output interfaces 840.

18 Computer 802 can operate in a networked environment using logical
19 connections to one or more remote computers, such as a remote computing device
20 848. By way of example, the remote computing device 848 can be a personal
21 computer, portable computer, a server, a router, a network computer, a peer device
22 or other common network node, and the like. The remote computing device 848 is
23 illustrated as a portable computer that can include many or all of the elements and
24 features described herein relative to computer system 802.

1 Logical connections between computer 802 and the remote computer 848
2 are depicted as a local area network (LAN) 850 and a general wide area network
3 (WAN) 852. Such networking environments are commonplace in offices,
4 enterprise-wide computer networks, intranets, and the Internet. When
5 implemented in a LAN networking environment, the computer 802 is connected to
6 a local network 850 via a network interface or adapter 854. When implemented in
7 a WAN networking environment, the computer 802 typically includes a modem
8 856 or other means for establishing communications over the wide network 852.
9 The modem 856, which can be internal or external to computer 802, can be
10 connected to the system bus 808 via the input/output interfaces 840 or other
11 appropriate mechanisms. It is to be appreciated that the illustrated network
12 connections are exemplary and that other means of establishing communication
13 link(s) between the computers 802 and 848 can be employed.

14 In a networked environment, such as that illustrated with computing
15 environment 800, program modules depicted relative to the computer 802, or
16 portions thereof, may be stored in a remote memory storage device. By way of
17 example, remote application programs 858 reside on a memory device of remote
18 computer 848. For purposes of illustration, application programs and other
19 executable program components, such as the operating system, are illustrated
20 herein as discrete blocks, although it is recognized that such programs and
21 components reside at various times in different storage components of the
22 computer system 802, and are executed by the data processor(s) of the computer.

23 **Conclusion**

24 Page-view recording with click-through tracking provides accurate
25 customer site usage information, and tracking information that identifies which

1 content is being requested, and how and from where the content is being
2 requested. The tracking information can be analyzed to determine how to better
3 design and present content, such as a Web page, that will be rendered for user
4 viewing. Being able to determine not only the content that a viewer sees, but also
5 how a viewer perceives the content is valuable marketing and business
6 information.

7 Although the systems and methods have been described in language
8 specific to structural features and/or methodological steps, it is to be understood
9 that the invention defined in the appended claims is not necessarily limited to the
10 specific features or steps described. Rather, the specific features and steps are
11 disclosed as preferred forms of implementing the claimed invention.
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